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E7.6-10243
CR-146526

THIRD QUARTERLY PROGRESS REPORT

NASA Investigation 22640

August 21, 1975 - November 21, 1975

A. PROBLEMS

No serious problems were encountered during the report period.

The major operational difficulty experienced was in the coordination of ground truth surveys with LANDSAT-2 and U-2 overflight schedules. Poor weather conditions prevailed until the last week of October, when acceptable imagery was obtained.

Malfunction of the camera on low altitude photography flights (12,000 feet) required reflying the test area about two (2) weeks after the ground truth, U-2 and LANDSAT-2 imagery were acquired.

B. ACCOMPLISHMENTS

(1) September, 1975:

Defective computer compatible tapes for the February 20, 1975, LANDSAT-2 imagery were replaced by satisfactory tapes in this report period. The new tapes were processed by the Environmental Research Institute of Michigan (ERIM) to produce example output products for use in preliminary analysis and for planning a coordinated field exercise to be done in late October.

Modelling and analysis by MATHEMATICA, Inc. of the current strip mine inspection process was continued during this report period. Based on corrections found to be necessary in the coding of some water quality findings a number of revisions were made in data files and statistical tables. A number of results of interest can be summarized as follows:

a. The apparent rate of inspections per mine is about once every six (6) weeks;

(E76-10243) [ENVIRONMENTAL EFFECTS OF STRIP MINING] Quarterly Progress Report, 21 Aug. - 21 Nov. 1975 (Kentucky Dept. of Natural Resources and) 3 p HC $3.50 CSCL 05B G3/43 00243 Unclas N76-20591

b. The number of violations detected appear to be proportional to the number of inspections;

c. The number of vegetation violations reported has increased each year from zero in 1971;

d. "Method of operation" violations show a significant seasonal trend, which, in turn, can be accounted for by a positive correlation between violations and monthly precipitation;

e. A significant association exists among most types of violations.

(2) October, 1975:

Computer processing of LANDSAT-2 CCT from the February 20, 1975, overpass, as well as the statistical analysis of routine field inspection data were continued into October and were completed for review at a planning meeting held late in October. On October 23, representatives of the Kentucky Department for Natural Resources and Environmental Protection (DNREP), ERIM, Ford-Bacon & Davis, Inc. (FB & D), and MATHEMATICA, Inc., met in Louisville, Kentucky to review preliminary results derived from the February imagery and to make final plans for the field exercize. The group continued their discussions on October 24 at the Western Kentucky Area Reclamation Office in Madisonville, Kentucky.

Representatives of DNREP and of FB & D, working out of the Western Kentucky Office in Madisonville, performed most of the planned field work on October 29, 30, and 31. Three teams visited preselected sites in the test area. Two of the groups used 4-wheel drive, all terrain vehicles while the third group was transported by a state owned helicopter assigned to DNREP. Ground truth observations included 35 mm color slide photographs, along with visual identification of the type of vegetation and the percentage of ground cover at each site.

(3) November, 1975

Ground truth surveys were completed during the first week of November. Low altitude aerial photographs obtained on October 30 were found to be unuseable because of a camera malfunction which was not detected until the films were developed. The test area was reflown on November 10. Excellent imagery was obtained in black and white, and in color infrared at a scale of 1:24,000.

Representatives of MATHEMATICA and ERIM met on November 11, in Ann Arbor, Michigan. The ERIM team, primarily oriented toward computer processing of LANDSAT imagery, and the MATHEMATICA team, emphasizing modelling and data analysis, met to establish clear guidelines for developing and analyzing the data sets from LANDSAT imagery.

C. SIGNIFICANT RESULTS

None to report.

D. PUBLICATIONS

None to report.

E. RECOMMENDATIONS

None.

F. FUNDS EXPENDED TO NOVEMBER 21, 1975

$1,179.00

G. DATA USE TO NOVEMBER 21, 1975

	Value of Data Allowed	Value of Data Ordered	Value of Data Received
LANDSAT Imagery	700*	313	237
Computer Compatible Tapes	1000	200	200
Aircraft Imagery	2538	665	665

*Updated by addition of $300 September 1975.

H. AIRCRAFT DATA

No new aircraft data were received during the report period.